

# 1.0 INTRODUCTION

## 1.1 Forward

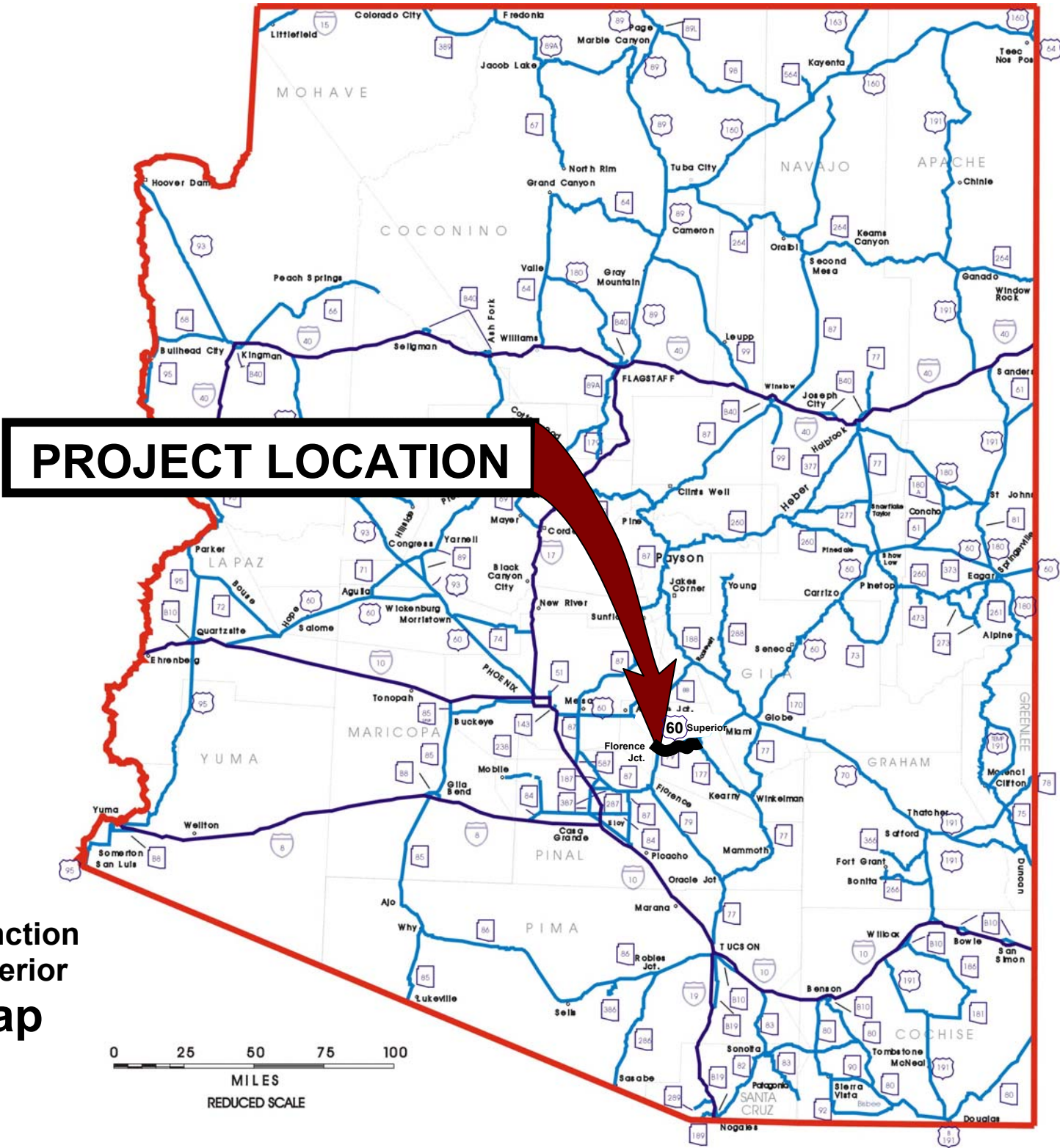
This Initial Design Concept Report is submitted in accordance with Contract 96-23 between the Arizona Department of Transportation (ADOT) and Jacobs Civil Inc. The report presents the results of an investigation of alternatives for improving United States Route (US) 60 between Florence Junction [US 60 / State Route (SR) 79] and the Town of Superior at the intersection of US 60 and SR 177.

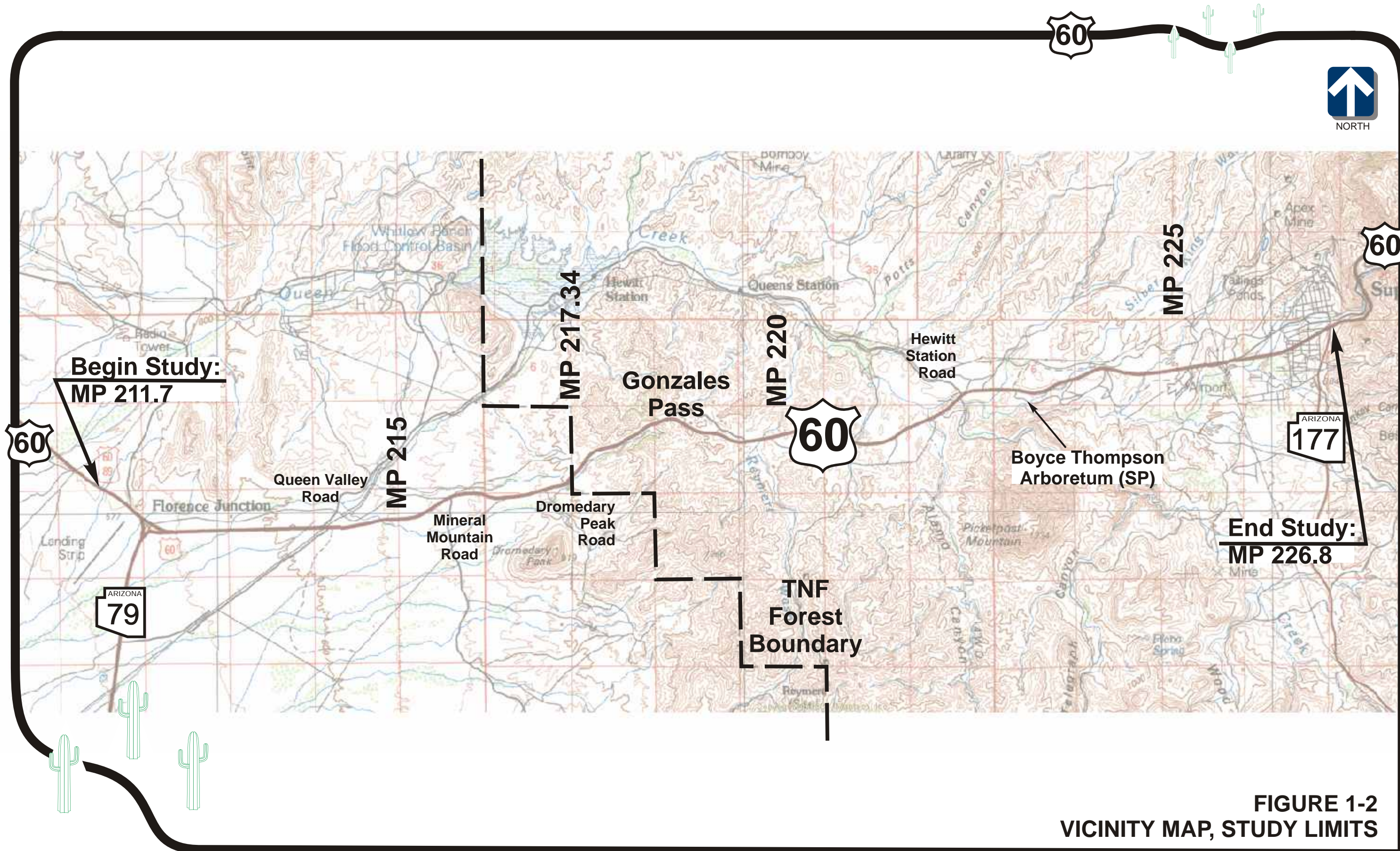
The purpose of the Design Concept Report is to develop and evaluate alternatives for realignment and/or improvement of US 60 between Florence Junction and the Town of Superior to enhance safety and traffic operational characteristics of the roadway and to meet current and future traffic needs. In addition to traffic and safety, several improvements were considered to enhance the roadway appearance while blending in with the adjacent landscape and potential development. This Initial Design Concept Report presents various alternatives for meeting these objectives, compares the differences between the proposed improvements, and identifies those solutions that should be considered for detailed study/design. Following acceptance of the roadway alignments recommended in this report, a Final Design Concept Report will be prepared to provide a long-range plan that will guide future decisions and design regarding the ultimate improvements to US 60.

Several governmental agencies have been involved in the study including the Federal Highway Administration (FHWA), Pinal County, Tonto National Forest (TNF), the Town of Superior, Arizona Department of Public Safety (DPS), several departments within ADOT, Arizona State Lands, U.S. Bureau of Land Management (BLM), as well as BHP Copper and various utilities.

Figure 1-1 shows the location of the study. Figure 1-2 defines the limits of the study route, beginning about ½-mile west of the intersection of SR 79 and US 60 (Milepost [MP] 211.7) at Florence Junction and extending eastward approximately 15 miles to MP 226.8, at the intersection of SR 177 and US 60 in Superior. The study route is located within Pinal County and lies within the ADOT Globe District.

**US 60: Florence Junction  
to the Town of Superior  
Location Map  
Figure 1-1**





**FIGURE 1-2**  
**VICINITY MAP, STUDY LIMITS**

## 1.2 Need for the Project

US 60 serves as a major regional transportation route connecting the Phoenix metropolitan area to recreational areas to the east and north located within the White Mountain Apache Reservation and Apache-Sitgreaves National Forest. The roadway, classified as a rural arterial, also serves as a commercial link between the Phoenix metropolitan area and several towns and communities including Superior and the Globe-Miami area. US 60 intersects US 70 near the east end of Globe and connects Safford and other communities in the Gila Valley to the Phoenix metro area. The segment of US 60 from Florence Junction and Superior also accommodates commuter traffic between Superior/Globe and employment destinations including the State prison in Florence and increasing commuter traffic to the metropolitan Phoenix area.

The route between Florence Junction and Superior originated as a wagon trail that followed along Queen Creek, located north of the existing US 60 location. It was known as the Phoenix-Pinal Road in 1885. In 1929, the Phoenix to Superior Road was constructed on an alignment that was near to the current US 60 alignment. Portions of that historic route can still be seen today. Between 1948 and 1955, US 60 was reconstructed on the current alignment from Florence Junction to Superior. Although this construction resulted in a vastly improved roadway, it does not comply with current design recommendations for a design speed of 65 mph. Some segments of the route have since been upgraded, but a significant portion is still in use as constructed in the late 40s and early 50s. Section 3 of this report presents a summary of an evaluation made of the existing design features along US 60.

Traffic volumes along the route are increasing as the population of the State experiences continued growth. As the Phoenix area continues to expand, traffic through the Florence Junction and Superior areas will increase significantly. Travel speeds are also increasing on State highways. On June 22, 1998, ADOT raised the posted speed limit of this section of US 60 from 55 mph to 65 mph. The increase in traffic speed, volume and the number of accidents reduced the operational efficiency of this section of US 60. The Level of Service rating was subsequently reduced to E during the peak hour. This reduction resulted in requests from the ADOT Globe District personnel, as well as the public, for improvements to the highway to increase capacity while maintaining a safe travel environment.

A proactive, long-range plan is necessary to guide future decisions regarding the improvements being considered for the highway. ADOT

began its planning process by conducting a feasibility study to determine possible corridors and identify general improvements discussed within this study (see the *US 60: Florence Junction to Superior Feasibility Report*, issued June, 1999) As the improvement corridors within the Feasibility Study were accepted by agencies and the public alike, ADOT decided to prepare a Design Concept Report in concert with the accompanying environmental documentation.

## 1.3 Description of the Project

### 1.3.1 Project Limits

The study route under consideration extends easterly from MP 211.7 (1/2-mile west of the SR 79 junction) to MP 226.8, (the intersection of SR 177 in Superior,) a total of 15.1 miles. The project is located within Township 2 South, Range 10 East, Sections 13-17; Township 2 South, Range 11 East, Sections 1, 7-12, and 18; and Township 2 South, Range 12 East, Sections 3-6.

The beginning of the project was originally based at the end of the divided roadway section for US 60 that terminated at Florence Junction. While the US 60 / SR 79 Interchange project was accelerated and constructed, this report continues to document the study and development process that was involved with the development of concepts through the interchange area.

### 1.3.2 History of the Project Route

Historically, the roadway has evolved from little more than a narrow wagon trail to its current status as a two-lane paved roadway. Silver was discovered near Superior in 1873. The Silver King Mining Company, formed in 1877, extracted silver from the Silver King Mine, which became the richest silver mine in Arizona history. Pinal City was established in 1878 near the present town of Superior and was a mill town for the Silver King Mine. The army established Camp Picket Post next to the mining town of Pinal. In 1881, the Arizona Stage Co. began as a stagecoach line from Florence to Globe along Queen Creek. In 1910, Boyce Thompson founded the Magma Copper Company, which became the dominant industry in Superior, and was the basis for most of the development of Superior. The copper mining activity has dwindled to become almost non-existent in the Superior area and BHP Copper purchased Magma Copper a few years ago. The Town of Superior is trying to diversify its industry, but many residents of Superior now work in neighboring towns.

Highway development followed the development of Superior and other towns in the vicinity and involved several projects ranging from simple

roadway grading to realignment and asphalt surfacing. In 1929, a new roadway was constructed near the existing US 60 roadway. Many sections of this historic roadway can still be seen from the present roadway alignment. In the late 1940's and early 1950s, the highway was reconstructed on a different alignment adjacent to the 1929 alignment. In 1986, US 60 was designated a scenic route from MP 214.5 to MP 240.5. Table 1-1, shown on the following page, illustrates the history of development, and lists the various projects, types of construction, and year(s) of construction.

The Florence Junction intersection area has received accelerated design and construction funding. The funding for improvements was accelerated in this area as it had the highest incidence of accidents within the corridor and special safety funds became available. As such, a separate study document, a Project Assessment (PA), and a separate environmental document, a Categorical Exclusion (CE), was prepared for this portion of the corridor to investigate design alternatives and receive approval for final design. The PA was completed in November 2000, and the CE will be completed in October 2001. Construction of the US 60/ SR 79: Florence Junction Traffic Interchange project was completed in June 2003 and is now open to traffic.

Similarly, the SR 177 interchange was studied for improvement and subsequently had a new WB on-ramp constructed with the EB off-ramp improved. This project was completed in July 2003.

### 1.3.3 Purpose and Scope of the Project

The purpose of this study is to identify and select improvements and develop a plan to implement them. The following elements will be studied in developing the preferred improvements: an evaluation of the existing design features; an analysis of traffic volumes and accidents; operational characteristics; development; and evaluation of alternatives for improving the roadway to meet current recommendations for safety, capacity, and recommendations for ultimate roadway improvements.

## 1.4 Project Objectives

The study team, in cooperation with the participating government agencies, established a number of project objectives at the outset of the study, together with a list of factors to be used in evaluating each of the design concept alternatives. The process involved input from the general public as well as from representatives of the various government agencies as described in the following sections.

Table 1-1  
PREVIOUS ROADWAY PROJECTS

Project No.	Begin MP	End MP	Construction Date	Description
N/A	211.7	226	1929	Concrete
F-23(5)	211.7	218.78	1948	40’ Mixed Bituminous Surface
F-23(6)	218.78	222.20	1948	40’ Mixed Bituminous Surface
F-23(7)	222.20	223.64	1948	40’ Mixed Bituminous Surface
NON FA 23-F(1949)	223.64	225.44	1949	40’ Mixed Bituminous Surface
NON FA 23-F(1952)	225.44	225.71	1952	40’ Mixed Bituminous Surface
NON FA 16(1954)A	225.71	227.04	1955	40’ Bituminous Surface to Bypass the Superior Town Center
F019-1(9)	212.02	212.62	1960	New 38’ EB Roadway
F-022-3(23)	210.2	212.03	1965	New 38’ WB Roadway
F-022-5-904	223.50	226.00	1981	40’ Asphalt Concrete and ACFC Overlay
HES-022-3(36)	221.52	222.38	1985	Replace Guardrail and Bridge Barrier for Queen Creek Bridge.
FR-022-3(43)	212.1	223.50	1986	40’ Asphalt Concrete and ACFC Overlay
F-0022-3(65) F-022-3-553	226.15	226.63	1992	55’ AC with Curb & Gutter and Landscaping
F-022-3-566	223.50	226.12	1993	40’ Asphalt Concrete and ACFC Overlay
STP-022-3(76)P	211.29	223.50	1997	40’ Mill and AR-ACFC Overlay
STP-022-3(83)P	EB 208.44	212.00	2000	Pavement Preservation
MA-022-3(90)P	WB 208.40	212.10	2000	Pavement Preservation
STP-060-D(007)A	226.6	226.9	2003	Ramp and Mainline Reconstruction
STP-HES-TEA-060-D-(006)B	EB 211.1	213.6	2003	Construct Interchange

1.4.1 The Scoping Process

The Design Concept Report for US 60 was initiated with scoping meetings conducted with Federal, State, and local agencies and the general public. Public scoping meetings were held in Apache Junction and Superior during the evenings of January 28th and 29th, 1998, with the agency scoping meeting occurring earlier on the 28th at the Magma Club in Superior. In addition, the study team participated in a meeting with ADOT’s Globe District personnel on December 15th, 1998 and in a meeting with BHP Copper and TNF personnel on January 22<sup>nd</sup>, 1999 to further discuss issues related to the improvement of US 60.

The purpose of these meetings was to obtain information from area residents, business people, and public agency representatives regarding the existing roadway and surrounding area in order to determine issues that needed to be addressed in preparing the Design Concept Report and environmental documentation for the project. The informal public sessions provided an opportunity for those in attendance to describe issues and express concerns about the existing roadway characteristics as well as to suggest various improvements that could be considered during the study.

Everyone in attendance indicated that US 60 needed to be improved to some extent throughout the corridor. Issues, concerns, and opportunities discussed at the public scoping meetings generally focused upon roadway safety, scenic characteristics, access control and economic impacts to the area.

The agency scoping meeting was attended by various representatives of the Arizona Department of Public Safety (DPS), Pinal County Highway Department, Federal Highway Administration (FHWA), Tonto National Forest (TNF), BHP Copper, Central Arizona Association of Governments (CAAG), Arizona State Land Department, and ADOT. Numerous issues, concerns, and opportunities were discussed during the meeting, but the most significant ones were roadway safety, visual appearance of the roadway cross-section, and access. Other study elements that were considered important included costs, maximum use of the existing roadway, coordination with new development, and no new right-of-way (R/W) from private lands.

1.4.2 Issues, Concerns, and Opportunities

During the agency and public scoping sessions, the following issues, concerns, and opportunities (ICO’s) were identified:

1. **Roadway Safety ICO’s:** The safe flow of traffic was a major concern for both the public agencies and the general public. The opinions expressed indicated a strong desire for roadway improvements especially the divided roadway section. Agency and public participants recommended consideration of the following safety issues:
- Include a traffic interchange at the intersection of SR 79 and US 60.
  - A divided highway is necessary to reduce the severity of accidents.

- The design alternatives must account for winter visitors and weekend recreational users.
- Improvements are necessary to the Gonzales Pass area where the climbing lanes transition to a 2-lane section.
- Properly designed deceleration and acceleration lanes should be provided at higher volume access points such as the Boyce Thompson Southwestern Arboretum.
- Include measures to reduce traffic speed in Superior to improve safety for pedestrians, especially children.

DPS representatives commented that the recent increase in the speed limit is causing safety concerns and an increase in traffic accidents. ADOT's Globe District and DPS personnel emphasized their concerns for safety at the intersection of SR 79 and US 60.

**2. Scenic/Recreational Benefit ICO's:** Tonto National Forest representatives had visual and wildlife concerns. They suggested that the natural scenic assets of the corridor can be enhanced by repairing cuts and fills in the old 1929 roadway that are visible from the existing and new roadways with excess fill material. Another feature that has negative visual impact is the existing El Paso Natural Gas line, which is above ground in many locations along US 60 and is visible to the traveling public. Scenic vista turnouts should be included along the highway to enhance the traveling public's opportunities to appreciate the aesthetics of the corridor. The historic Arizona Trail crosses US 60 at MP 221 and the Forest Service is planning a trailhead development project at this location in the near future. Wildlife crossings occur at the major wash crossings along US 60 and should be maintained. The desert tortoise and desert bighorn sheep have been observed along portions of US 60, from Gonzales Pass to the Arboretum.

The Boyce Thompson Southwestern Arboretum is listed on the National Register as an archaeological and historic resource district and impacts to it including noise levels should be minimized with any new improvements.

**3. Development and Access ICO's:** Representatives from the Town of Superior, Pinal County, the State Land Department and ADOT all need to better coordinate development along the corridor. Access should to be maintained to developable land adjacent to the highway. ADOT does not have the ability to deny access unless they have acquired that right from the adjoining property, however, only one access point per parcel is required. ADOT's task is to move people safely and efficiently through the corridor and to meet this goal they would like to preserve the function of US 60 as a

high-speed arterial. An access control resolution has recently been adopted by the Transportation Board for US 60 from Apache Junction to the TNF boundary. This Design Concept Report does address a proposed access control plan for the entire roadway, and does include a construction sequence / implementation plan for the proposed improvements. See Sections 6.4 and 8.0 for details.

**4. Alignment ICO's:** The alignment should fit the landform to the greatest extent possible to reduce the impact upon the natural topography. Many of the participating agencies were complementary as to how the recently completed SR 87 improvements successfully accomplished this. State Lands and the Forest Service also requested that the new alignments be designed to minimize the amount of new R/W required for the roadway improvements. All alignment options should be considered to ensure that the best possible and least environmentally damaging alignment is selected.

Concurrent with this study, a feasibility study is being performed from Superior to Globe along the US 60 corridor. While not directly associated with this project, the study team will coordinate with the alternatives being considered in the event that adjustments west of Superior need further consideration.

## 1.5 Characteristics of the Corridor

Beginning at the west end of the project (and prior to the construction of the Florence Jct TI), US 60 was a divided 4-lane highway that transitioned to an undivided roadway while traversing rolling terrain through the at-grade, Florence Junction/SR 79 intersection. Beyond the intersection, the roadway transitions to an undivided, two-lane section through relatively level topography. East of the Queen Valley Road intersection and the Magma Arizona Railroad crossing, the terrain becomes more rolling and the roadway more curvilinear. Between the TNF Boundary on the west, and the Boyce Thompson Southwestern Arboretum on the east, the topography can generally be described as mountainous with limited passing opportunities except for a 2.5-mile section of 3-lane roadway centered near Gonzales Pass. Beyond the Arboretum and through the Town of Superior, the terrain returns to a more rolling topography. At the western limits of Superior, the roadway transitions to a 3-lane urban section with a continuous two way, left turn lane. Portions of the roadway through the town include widened curbed pavement; however, curbside parking is not allowed. Prior to the underpass of SR 177, the roadway

returns to a 2-lane section with narrow shoulders and no provisions for parking.

The majority of this 15-mile section of US 60 roadway has been classified as a rural arterial. US 60 is classified as an urban arterial in the Town of Superior (MP 226.1 to MP 226.8). The posted speed limit varies from Florence Junction to Superior. It is 50 mph at the junction with SR 79, 65 mph from SR 79 (MP 212.96) to Superior (MP 225.06), 50 mph from MP 225.06 to MP 225.6 and 45 mph in the curbed section in Superior (MP 225.6 to MP 226.8).

US 60 serves a mixture of traffic including local merchants/ residents, commuters, recreational visitors, and travelers or truckers passing through the study limits. Mining operations can generate additional traffic and has the potential to significantly impact traffic if mining picks up in the future, however at the present time is not an issue.

Elevations along the route vary from approximately 1890 feet above mean sea level at the beginning of the project, climbing to about 2,650 feet near Gonzales Pass, and reaching to 2,840 feet at the junction of SR 177. Topographically, the terrain is generally classified as rolling for roadway design criteria purposes except near Gonzales Pass where the terrain is considered mountainous.

The adjacent land is generally open with moderate desert vegetation. Private land exists near the junction with SR 79 with minimal development. There is a Texaco gas station / market and minor industrial complex just east of the SR 79 intersection. Commercial development lines both sides of US 60 in the Town of Superior. Scattered residential development occurs along the highway beginning near MP 222 through the Town of Superior (MP 226). Most of the land adjacent to US 60 from SR 79 to the TNF Boundary at MP 217.34 is under the jurisdiction of The Arizona State Land Department. The TNF extends from this boundary to the Town of Superior with pockets of intermittent private property between East Hewitt Station Road and the town limits of Superior.